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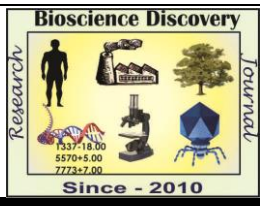

Survey of pigeonpea sterility mosaic disease in Marathwada region of (MS) India

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Abstract

Survey was undertaken in Kharif season of (2015-2016) and (2016-17) at randomly selected road side villages from two tahsil in Latuer, Osmanabad, Beed and three tahsil from Nanded,Parbhani,Hingoli,Jalna and Aurangabad district of Marathawada region. From each village two to three fields were taken into cosiderationfor recording disease incidence. The percent disease incidence of local Pigeonpea at Osmanabad and Latur during (2015-16) ranged from (48.30% to 55.30%) but it was higher (54.20 % to 60.20%) during (2016-17). The percent disease incidence in other district ranged from (29.40% to 42.50%) during both the years respectively.

INTRODUCTION

The area under pulses crop has stagnated all over the world. The large area under pulse crop in grain which is around 22-24million ha.which contribute 31% share. The world productivity of pulse crop in grain is 60kg/ha. The most important pulses grown in grain contributes near about 65-75% of the global production. In the crop Maharashtra is the major pulse growing state in the country on the basis of five years mean the area under pulses is 10.96kg/ha with average productivity of 09.73.which is law as compares to global and Indian productivity indicating a great scope in the state to boost the productivity in Marathawada region. The important pulse crops are grown on large scale under rainfed situations even though the productivity of *Pigeonpea* is as per with state productivity where as the productivity of urdbean and Mungbean is less as compared to state productivity in Marathwada region of Maharashtra. The important pulse crops are grown on large scale under rainfed situations eventhough the productivity of pigeonpea and chickpea as per with state. Pigeonpea (*Cajanas cajan*) is currently grown on 10.98 Lack ha. With productivity of 9.7t. Latur, Osmanabad, Beed, Nanded, Parbhani, H ingoli, Jalna, Aurangabad district in Marathwada region contribute to 4.73t the total Pigeonpea production in Maharashtra (Annonyms, 2014). This region is popularly known as Pigeonpea bowl. Pigeonpea is cultivated as rainfed sole crop or intercopped with sorg hum (*Sorghum bicolour*),Cotton (*Gossypium* sp.), Pearl millet (*Penniesetum glaucoma*). Mungbean (*vigna radiata*),Soyabean (*Glycine max)* itnis grown for grain which is sold in local market for cash, several dhal (dehulled Pigeonpea seed) Mills are located in this Mararhwada region for dehulling and processed seed is exported to other parts of India. In this region extensive pigeonpea cultivation sarted over 50 yrs ago Earlier cotton (*Gossypium* sp.) was the major crop due to erratic rainfall the scarcity of water for irrigation of bollworms problem yield of this crop was reduced significantly. Under similar condition Pigeonpea

cultivated as amajor crop thrived consequently its cropping area gradually increases presently it occupies a major part of agricultural land in this region and is the chief income source to the farming community. However Pigeonpea production in this region is not suitable due to Fusarium wilt and pod borer (Helicoverpa armiger).In addition becoming a serious problem (Narayan *et al*., 2000).The disesase by a Eriophyid mite (Aceria Cajani) yield losses due to SMD as estimated annual of 205.00 tonnes of grain in India alone (Kinniyan *et al*.,1984), zote et al (2002) is to be occurs up to 47% about 20%(worth over US 8 Million per annum) of other gross pigeonpea production in the area is due to SMD (Dharamraj *et al*., 2004) respectively. In Maharathwada region it is therefore necessary to monitor pigeonpea SMD Intensity. The few years ago high yielding pigeonpea varieties BDN-1 and BDN -2 were popularly grown but there varieties were highly susceptible to wilt and set back the future of pigeonpea cultivation in this regions Vasantrao Naik Marathwada Krishi Vidya Peeth variety BSMR-756(194) BSMR-853 and BDN-708, BDN-711(2011) And BDN-716 (2015) .These varieties are highly combine resistance to Fusarium wilt and SMD were selected from germplasm of Agricultural Research Station , Badnapur VNMKV, Parbhani Maharastra India due to the combine resistance to wilt and SMD these both varieties has become popular among the farmers community of this region. presently pigeonpea cultivation SMD appeared in traces in same areas in Osmanabad and Latur district bordenning Karnataka State. The disease incidence increased in this region following major SMD epidemics in 2003 and 2006 in the adjoining Maharathwada region of Maharashtra (Zote *et al*., 1997). Due to extensive and continuous cultivation of Maruti Local as sole crop over larger area, SMD from these major patches spread over to wider region in Nanded, Parbhani, and Hingoli began to spread to other districts. Pigeonpea growing regions in Marathwada since then increased sterility mosaic disease incidence was reported year after year in these region (Table 1) during the past four years 29.40-60.20% SMD incidence was recorded in several farmer's field and some farms 100% incidence was recommended (Annonyms, 2005 and officers of MAHABIJ state department of Agricultural Perssonel communication).

RESULTS AND DISCUSSION

The percent disease incidence local Pigeonpea at Osmanabad and Latur district during (2015-16) ranged from 48.90 to 55.30% but it was higher (54.20 to 60.20) during (2016-17) . The percent disease incidence in other district ranged from 29.40% to 42.50% during both the years. Dharmaraj et al (2004) reported several incidence of SMD at Bidar and Gulgerga ,Karnatka region during 2000-2002. The disease was also reported (Anonymous,2005).

Table: 1 Pigeonpea sterility mosaic disease (SMD) incidence in districts of Marathwada region of BSMR-853 Maharashtra.

Station	**Area**	**Incidence % (2015-2016)**	**Incidence % (2016-2017)**	**Mean %**
Aurangabad	10	35.00	38.20	36.60
Jalna	12	30.50	37.60	34.05
Parbhani	12	29.40	33.25	30.82
Hingoli	10	32.00	35.68	33.84
Beed	15	42.50	50.20	46.35
Nanded	12	36.80	42.20	39.50
Latur	15	55.30	60.20	57.70
Osmanabad	15	48.90	54.20	51.50
Mean	101	38.77	44.23	

1.SMD incidence was based on symptons. Random samples were tested for PPSMV by double antibody sandwich ELISA as described by Kumar et al (2002).Nearby 70% of the surveyed filed contained the variety Maruti in Latur and Osmanabad districts adjoining to Bidar, Gulbarga and Bijapur border region of Karnataka, rest were local varieties sown by farmers.

In Parbhani, Aurangabad, Jalna and Beed district of Marathwada region in varing severity. It was found highly destructive in Osmanabad and Latur district. It was also observed in Aurangabad, Jalna and Hingoli districts, where Pigeonpea is grown in large pockets by local varieties. To obtain a chaning trend of this disease year after year a constant survey in identified localities need to be done in relation to varities grown. Therefore, attempts are being made to develop highyielding varities having combine resistance to both SMD and wilt. BSMR-853,BDN-708 and BDN-711 were released for cultivation in this region. BSMR-853 is resistant to wilt and SMD strain prevalent in Marathwada region of Maharashtra, but it is some late in maturity (170-180days). Hence the crop is predisposed to terminal drought and increased pod borer attacks. Despite this, the variety BSMR-853 is recommended for cultivation with appropriate crop management practices in SMD endemic zones. The development of Pigeonpea varities, with a maturity period of 160-180 days is required for this region due to the demend of farmers recently BDN-711 and BDN-716 is released for cultivation to this region.

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